

# **Standard Operating Procedure For The Administration Of**

## **Article 12 Of The Suffolk County Sanitary Code**

### **SOP No. 9-95 - *Pumpout And Soil Cleanup Criteria*** (January 7, 1999)

#### **Statement of Purpose:**

Article 12 of the Suffolk County Sanitary Code, requires the owner, operator or any other person in possession or control of an industrial facility to report to the Department of Health Services (the Department) any unauthorized discharge, leak or spill of toxic or hazardous material within two hours of knowledge of that discharge, leak or spill. Knowledge includes information generated during Phase I and Phase II Environmental Assessments, such as results from groundwater and soil sampling. In addition, Article 12 requires the owner, or any other person in possession or control of the source of the discharge, and/or the owner of the property onto which the discharge has occurred, to immediately cease the discharge and to reclaim, recover and dispose of the discharged material and to restore the environment to the condition that existed prior to the discharge. Since it is not always possible to achieve pre-discharge conditions, this document was generated to provide guidance when evaluating the potential impact of a discharge on the environment and to provide assistance when determining if, and to what extent, contaminated liquids and/or solids must be removed from sanitary systems, storm drains, the surface of the ground, or other locations at a facility. It was generated to be applicable to most situations; however, the Department reserves the right to apply additional requirements when warranted by conditions encountered at a particular site.

This document is not meant to represent approval by the Department of any remedial activities, or to represent the Department's determination that a site either does or does not require remediation. All spills, leaks, or discharges of toxic or hazardous materials, as defined by §760-1203 of the Sanitary Code, must be reported to the Office of Pollution Control, which will have the sole authority to make the determination as to what, if any, cleanup will be required. When assessing the need for cleanup at a specific site, the Department will consider all human health and environmental factors that are available. In many cases, site specific cleanup criteria may vary from the values listed in this SOP. Be advised that, in addition to meeting the Suffolk County Department of Health Services (SCDHS) requirements, the responsible party must meet the requirements of the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (USEPA).

## Criteria:

Table 1 lists Action Levels and Cleanup Objectives for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (Semi-VOCs) and heavy metals commonly found in both liquid and solid samples. When the concentration of a single contaminant, or a class of contaminants such as total petroleum hydrocarbons, meets or exceeds the "Action Level", a cleanup, or other action, is required.

As stated in the Sanitary Code, the goal of any remedial action required by this Department, is to return the site to pre-discharge conditions. If this is not possible, at a minimum, the cleanup must ensure reasonable protection for public health and the drinking water supply. Therefore, under most conditions, the contaminant concentration in the soil after a cleanup, should not exceed the values indicated in the "Cleanup Objective" column.

**Table 1. Cleanup Criteria**

<u>SAMPLE TYPE</u>	<u>CONTAMINANT</u>	<u>ACTION LEVEL</u>	<u>CLEANUP OBJECTIVE</u>
Liquid	Volatile Organics (VOCs) or Metals*	100 x Discharge Standard or 1000 ppb Total VOCs	(1)
Soil/Sludge	Volatile Organics (VOCs)	Appendix A or 15,000 ppb total VOCs.	Appendix A or 10,000 ppb total VOCs
	Metals*	Appendix B	Appendix B
	TPH	500 ppm (2)	500 ppm (2)
	Semi-VOCs	Appendix A	Appendix A

\* Laboratory analysis for heavy metals must be performed by acid digestion for "total metals". TCLP, or other extraction methods, are not to be used for this purpose.

### **(1) - Liquid Endpoint Samples**

*Liquid endpoint samples must be collected when groundwater is encountered during a cleanup operation. If the concentration of VOCs, or metals, in the sample meets, or exceeds 100 times the discharge standard for a specific parameter, or the total VOC concentration meets, or exceeds 1000 ppb, a groundwater sample must be collected immediately downgradient of the point of contamination to determine if there has been an impact on the groundwater. If significant groundwater contamination is found, a more extensive groundwater investigation will be required. The Department reserves the right to require the installation of monitoring well(s) at lower contaminant levels based on the type of contaminant encountered and other site specific conditions.*

## **(2) - Remediation Based on Total Petroleum Hydrocarbon (TPH) Concentration.**

*Although the analysis is not normally required by this Department, if TPH analysis is performed on a sample where all VOC and heavy metal parameters are within guidance values, and the TPH concentration is greater than, or equal to, 500 ppm, the responsible party must provide the Department with a semi-volatile (base/neutral) analysis of the effected soil. The results of this analysis will then be compared with the semi-volatile organic values listed in Appendix A, subject to a maximum allowable total semi-volatile concentration of 500 ppm. In summation, soil containing a TPH concentration below 500 ppm will normally be allowed to remain in place if no individual constituent meets, or exceeds its guidance value listed in either Appendix A or B, the total VOC concentration does not equal, or exceed 10 ppm and the material does not exhibit a petroleum odor.*

**NOTE:** In order to perform an adequate environmental evaluation, the Department may, in certain instances, require additional analysis to be performed based on the chemicals stored, or in use, at a site. This can include TPH, cyanides, phenols, PCBs, pesticides and/or a more extensive list of heavy metals, VOCs and/or Semi-VOCs.

### **Other factors to be considered when evaluating a site :**

In many instances, additional information is available which the Department will utilize when establishing cleanup goals, or action levels, for a specific site. Some factors that are considered when reviewing site specific conditions to decide if cleanup goals should be set higher or lower than the guidance values listed in this document include, but are not be limited to:

Site history - Past discharge practices, as well as the extent and type of discharge, should be evaluated.

Site location - If the facility is in a water sensitive area, more stringent cleanup goals may be warranted.

Distance to groundwater - This guidance document assumes a 100 fold reduction in contaminant concentration between the source area and the drinking water supply. If the distance between the contamination and the groundwater is less than three feet, or a drinking water supply well is located nearby, the guidance values listed may not provide adequate protection for the water supply.

Impact of discharge - If the Magothy aquifer, shallow drinking water wells or sensitive surface waters may be effected, more stringent cleanup criteria may be necessary.

TCLP analysis - If the listed cleanup objectives can not be obtained, TCLP analysis may provide assistance in determining site specific conditions and/or cleanup goals.

Monitoring well data - If groundwater degradation can be attributed to the contamination, more conservative cleanup goals should be established.

Future use of site - Although it is not this department's policy to allow pockets of contamination to remain in the ground throughout the county, in certain cases, where the cleanup objectives listed in this document can not be achieved, higher concentrations of contaminants may be allowed to remain in place if the site is to be stabilized in a manner acceptable to the Office of Pollution Control. In these instances, land, or deed, restrictions may be required.

**APPENDIX A**  
**CLEANUP OBJECTIVES AND ACTION LEVELS**  
**FOR VOLATILE ORGANICS (UG/KG)**  
 (see note A-1)

<b><u>Contaminant</u></b>	<b><u>Action Levels</u></b> <b><u>(ppb)</u></b>	<b><u>Cleanup Objectives</u></b> <b><u>(ppb)</u></b>
Acetone	**	**
Benzene	120	60
Bromobenzene	1,600	800
Bromochloromethane	400	200
Bromodichloromethane	600	300
Bromoform	1000	500
n-Butylbenzene	6,800	3,400
sec-Butylbenzene	10,000	5,000
tert-Butylbenzene	6,800	3,400
CarbonTetrachloride	1,200	600
Chlorobenzene	3,400	1,700
Chloroethane	400	200
Chloroform	600	300
Chlorotoluene(s)	3,600	1,800
Dibromochloromethane	600	300
1,2-Dibromo-3-chloropropane	1,000	500
1,2-Dibromoethane	600	300
Dibromomethane	400	200

o-(1,2)-Dichlorobenzene	15,000	8,000
m-(1,3)-Dichlorobenzene	3,200	1,600
p-(1,4)-Dichlorobenzene	15,000	8,000
Dichlorodifluoromethane	600	300
1,1-Dichloroethane	400	200
1,2-Dichloroethane	200	100
1,1-Dichloroethene	800	400
cis-1,2-Dichloroethene	600	300
trans-1,2-Dichloroethene	600	300
1,2-Dichloropropane	600	300
1,3-Dichloropropane	600	300
2,2-Dichloropropane	600	300
1,1-Dichloropropene	600	300
cis-1,3-Dichloropropene	600	300
trans-1,3-Dichloropropene	600	300
p-Diethylbenzene	7,600	3,800
Ethylbenzene	11,000	5,500
p-Ethyltoluene	3,600	1,800
Freon113	12,000	6,000
Hexachlorobutadiene	15,000	10,000
Isopropylbenzene	5,200	2,600
p-Isopropyltoluene	7,800	3,900
MethyleneChloride	200	100
(MTBE)tert-Butylmethylether	1,200	600
Methylethylketone	600	300
Methylisobutylketone	2,000	1,000
Naphthalene	15,000	10,000
n-Propylbenzene	5,000	2,500
Styrene	2,000	1,000
1,1,1,2-Tetrachloroethane	600	300
1,1,2,2-Tetrachloroethane	1,200	600
Tetrachloroethene	2,800	1,400
1,2,4,5-Tetramethylbenzene	15,000	10,000
Toluene	3,000	1,500

1,2,3-Trichlorobenzene	6,800	3,400
1,2,4-Trichlorobenzene	6,800	3,400
1,1,1-Trichloroethane	1,600	800
1,1,2-Trichloroethane	600	300
Trichloroethene	1,400	700
Trichlorofluoromethane	1,600	800
1,2,3-Trichloropropane	800	400
1,2,4-Trimethylbenzene	4,800	2,400
1,3,5-Trimethylbenzene	5,200	2,600
VinylChloride	400	200
Xylene(s)	2,400	1,200

### **Semi-Volatile Organics**

<b><u>Contaminant</u></b>	<b><u>Action Levels (ppb)</u></b>	<b><u>Cleanup Objectives (ppb)</u></b>
Acenaphthene	75,000	50,000
Anthracene	75,000	50,000
Benzo(a)anthracene	6,000*	3,000*
Benzo(b)fluoranthene	2,200*	1,100*
Benzo(k)fluoranthene	2,200*	1,100*
Benzo(g, h, i)perylene	75,000	50,000
Benzo(a)pyrene	22,000*	11,000*
Chrysene	800	400
Dibenzo(a,h)anthracene	75,000*	50,000*
Fluoranthene	75,000	50,000
Fluorene	75,000	50,000
Indeno(1,2,3-cd)pyrene	6,400	3,200
Phenanthrene	75,000	50,000
Pyrene	75,000	50,000

*\*If direct human exposure from ingestion or inhalation is a concern, the human health guidance values published by the USEPA should be used to formulate a cleanup goal, if that value is lower than the "Cleanup Objective" listed in this document.*

*\*\* Due to its relatively short half life in nature, if acetone is the only contaminant of concern in a sample, the primary response should be to determine and*

*eliminate the source of the acetone discharge. The requirement to perform a remediation will be determined on a case by case basis.*

Note A-1: Organic contaminants were evaluated in a manner consistent with the New York State Department of Environmental Conservation's Technical and Administrative Guidance Memorandum, (TAGM) HWR-94-4046. Cleanup objectives were calculated using the following relationship, subject to maximum contaminant concentrations of 10 ppm for total VOCs, 50 ppm for individual semi-VOCs and 500 ppm total semi-VOCs. Action levels were generally set at twice the cleanup objective, subject to maximum contaminant concentrations:

$$C_s = (D)(f)(C_w)(K_{oc})$$

Where:

$C_s$  = Allowable Soil Concentrations (ppb)

$D$  = Dilution Attenuation Factor of 100

$f$  = organic fraction in soil (assumed to be 1%, or 0.01)

$C_w$  = Water Quality Value (6NYCCR 703.5, or TOGS 1.1.1) in ppb

$K_{oc}$  = Organic Carbon Partition Coefficient (an approximation of the propensity of a compound to adsorb to organic matter in the soil)

## **APPENDIX B**

### **SOIL CLEANUP OBJECTIVES AND ACTION LEVELS FOR HEAVY METALS (MG/KG) (see Note B-1)**

<b><u>Contaminant</u></b>	<b><u>Action Levels</u></b>	<b><u>Cleanup Objective</u></b>	<b><u>Background Concentrations Eastern USA</u></b>
Arsenic	25.0	7.5	3.0 - 12
Beryllium	8.0	1.6	0.0 - 1.75
Cadmium	10.0	1.0	0.1 - 1
Chromium	100.0	10.0	1.5 - 40
Copper	500.0	25.0	1.0 - 50
Lead	400.0	100.0	4.0 - 61
Mercury	2.0	0.1	0.001 - 0.2
Nickel	1000.0	13.0	0.5 - 25
Silver	100.0	5.0	N/A

**Note B-1:** Certain metals, such as aluminum, iron and manganese, appear naturally in Long Island soils and are not considered to be significant under most conditions. Other metals will be evaluated on a case by case basis.